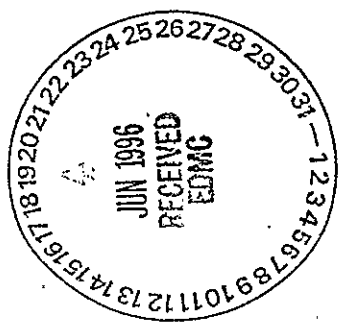
TANK WASTE REMEDIATION SYSTEM

DRAFT ENVIRONMENTAL IMPACT STATEMENT

PUBLIC MEETING



Columbia Basin College

Pasco, Washington

Thursday, May 2, 1996

6:00 O'clock, p.m.

TWRS EIS PUBLIC MEETING

PASCO, WASHINGTON

MAY 2, 1996

Speaker - **Paul Dunigan**: Good Evening. I would like to formally open tonight's public hearing and welcome all of you on behalf of the United States Department of Energy in the Washington State Department of Ecology. Tonight's public meeting is officially designated as the Pasco, Washington Public Hearing for the Tank Waste Remediation System Draft Environmental Impact Statement for the Hanford Site, Richland, Washington. This hearing is being held May 2, 1996, at Columbia Basin College in Pasco, Washington beginning at 6:16 p.m. and scheduled to end at 9:00 p.m. However, if we need to go longer to receive all the comments from those present, we will extend the hearing.

Tonight's hearing is one of two public hearings being held on the EIS in Washington and Oregon during the Month of May 1996. The Departments of Energy and Ecology are also sponsoring a series of meetings for the public on the EIS as well as consultation meetings with the Hanford Advisory Board, the Hanford Site Natural Resources Trustees, and Tribal Nations. My name is Paul Dunigan. I will be the monitor for tonight's hearing. I will conduct this hearing to ensure that all individuals and organizations here tonight who wish to comment on the EIS have a fair and equal opportunity to do so in keeping with both the letter and the spirit of the National Environmental Policy Act and the Washington State Environmental Policy Act.

Our agenda for tonight includes opening remarks by John Wagoner, the Department of Energy Hanford Site Manager and Mike Wilson, Ecology's Nuclear Waste Program Manager. They will be followed by brief presentations on the EIS by Carolyn Haass, the Department of Energy's TWRS EIS NEPA Document Manager and Mr. Geoff Tallent, Ecology's TWRS EIS Project Lead. Following their presentations, there will be a question and answer period during which you will have an opportunity to ask questions that will help you to better understand the content of the Draft EIS. We ask that you please hold any questions for Mr. Tallent or Ms. Haass until after their presentations. Following the question and answer period, we will take your oral comments.

The National Environmental Policy Act of 1969, commonly referred to as NEPA, requires that any Federal agency proposing an action that might have impacts on the environment evaluate all reasonable alternatives and their potential environmental impacts before taking the action. When the projected environmental impacts might be considered significant, an Environmental Impact Statement must be prepared. NEPA also requires the public be provided opportunities to comment while an EIS is being prepared. The Washington State Environmental Policy Act, commonly referred to as SEPA, is very similar to NEPA in its intent and purpose. Like NEPA, SEPA requires that any state agency proposing an action that might impact to the environment evaluate all reasonable alternatives and their potential environmental impacts before taking the action. The potential Washington State actions involved in remediation of the high-level tank waste at Hanford would be the issuance of Washington State environmental permits and authorizations necessary for the implementation of the actions selected in the Record of Decision for the EIS.

As with NEPA, when the projected environmental impact statement, I'm sorry, when the projected environmental impact might be considered significant, an Environmental Impact Statement must also be prepared. SEPA also requires that the public be provided opportunities to comment during the preparation of the EIS. Because NEPA and SEPA are very compatible in their purpose, intent, and procedures, the Department of Energy and Ecology have decided to prepare a single EIS addressing the requirements of both laws in a single document.

On Friday, January 28, 1994, the Department of Energy published a Notice of Intent in the Federal Register announcing its intent to prepare the TWRS EIS. On the same date, January 28, 1994, Ecology determined that a SEPA EIS was required for the project. The Department of Energy and Ecology agreed to co-prepare the EIS in a Memorandum of Understanding dated February 15, 1994. The format for tonight's meeting is intended to give as many people as possible the opportunity to participate including those who do not wish to make formal comments. We will take formal oral comments in this room throughout the time scheduled for tonight's meeting. There are also representatives from the Department of Energy and Ecology present who will be available throughout the hearing to answer questions on an informal basis. And also at the entrance to the room, there are information tables with information regarding the EIS, the Tank Waste Remediation Program, and the Hanford Site from the Department of Energy, Ecology, and stakeholders. This meeting is being recorded and verbatim transcript of the meeting will be made. All oral comments received will be included in that transcript. Transcripts will also be made of the other public hearings and meetings on this EIS. The transcripts will be included in the agencies record of these proceedings. The agencies will make the transcripts available at information locations

throughout Washington and Oregon as soon as they are available. After the agencies have reviewed all of the formal comments received at the public hearings and written comments that are submitted during the public comment period, the agencies will jointly prepare the Final Environmental Impact Statement. This Final Environmental Impact Statement is expected to be released in July of 1996. The Final EIS will be followed by a Record of Decision at least 30 days after the Final EIS. The Record of Decision would be expected to be released in August 1996 at the earliest.

Following their presentations, Ms. Haass and Mr. Tallent will respond to questions you may have regarding the EIS and they will then remain here during the remainder of the hearing to hear your comments. Because this is a formal public hearing, they will not be engaging in conversation with commentors except to ask clarifying questions to be sure they understand the comments. You should remember that only oral comments that are made here at the microphone are going to be transcribed and included in the transcript of this meeting. Therefore, any issues that are discussed in the question and answer session or in informal conversations with the Ecology or Energy staff that you wish to identify as formal comment should be made orally through using the microphone in the center of the room or in writing. I would encourage those of you who will be speaking tonight to provide me with written comments, a written version of your oral comments. If you have a transcript of your oral comments or if you have a written document that you wish to use to supplement oral comments, please give them to me and we'll enter them into the record. The documents submitted tonight will be given the same consideration as oral comments that are heard tonight, and if you are not ready to make comments orally or if you are uncomfortable

speaking in front of a large group, we have a comment form available at the side of the room or you can submit written comments on any paper or form that you have available. In addition, comments can be written and sent by mail. We have the addresses available at the registration table. You may also submit written comments tonight as we've discussed. Written comments by mail must be postmarked by May 28, 1996 to ensure their use in the preparation of the Final EIS. Comments received after that date will be accommodated to the extent practical. Written comments will be given the same level of consideration by the agencies as formal comments, whether the written comments are received by mail or turned in tonight.

I'd like to take a moment to go over the procedures we'll be using for the oral comments for tonight's hearing. We have some pre-registered speakers, people who have signed up in advance for this meeting and requested a time for which they wish to be called upon. As soon as possible to those times, I will call on the pre-registered speakers. In addition, some of you may have signed up to speak as you arrived and we will take those in order of their signing up. During the meeting, if you wish to make a comment and have not already signed up, you may do so and we will fit you in as soon as we can. If you're out of the room when your name is called, don't worry, we'll move on to someone else but we'll come back and try you again. I will not limit the comment of any of the statements that you make tonight, but I would ask you to keep your comments to the scope of the EIS. We will, as much as possible, allow anyone wishing to comment have as much time as they need to state their comments, however, in order to be sure that everyone who wants to make oral comments gets an opportunity, I ask that individuals please limit their comments to five

minutes and representatives of organizations limit theirs to ten minutes. As I mentioned, this hearing is being recorded and a transcript is being prepared based on the recording to help prepare a complete and accurate record. When you come forward to speak, please state your name and give your address before you begin giving your comment. If you are speaking as representative of an organization, please state the name of the organization you are speaking on behalf of. It would also help if you would spell your name and be quite clear about your mailing address.

Before we begin, Mr. Wagoner would like to make some opening remarks. He will be followed by Mr. Wilson following the opening remarks. Carolyn Haass and Geoff Talent will be giving an overview of the EIS, and following their remarks we will take questions and then begin the formal comment process. Mr. Wagoner?

Speaker - John Wagoner: Good evening and welcome. I'm particular pleased to see this number of members of the public here this evening and also because we're coinciding in terms of meeting dates with the meeting of the Hanford Advisory Board to have so many members of our Hanford Advisory Board here this evening too. So thank you, we also have the chair of the Advisory Board, Marilyn Reeves, who has been doing a very able job of share-putting this group and covering not even the same issues that you will hear tonight in looking at the Environmental Impact Statement. I'm also delighted Mike Wilson is able to be here tonight on behalf of the State Department of Ecology and you will hear from Mike in a minute because he is the state official responsible managerially for the oversite of the Hanford cleanup.

This process that we're going through may seem a bit formal and stilted but it is one that is based on law and its one that is intended to make sure that, as much as possible, the actions that we're talking about do receive a fair public hearing and that in fact we do everything we can to explain publicly what is contemplated, what the alternatives are that are being considered, and seek and record public reactions, concerns, comments, or questions relative to those proposed actions.

Tonight we're talking about what we propose to do with the Tank Waste Remediation System program and in that program specifically to talk about what the alternatives are for the disposal of the high-level waste in the tanks at Hanford as well as the cesium and strontium capsules that have been previously separated from that tank waste and are stored at Hanford. In this Environmental Impact Statement, there is a detailed analysis of the various alternatives under consideration that shows the pluses, the minuses associated with the various alternatives. This Environmental Impact Statement is, in fact, a very important step in the cleanup of Hanford. As we've identified, one of the most important issues that we have to deal with, the overwhelming one that comes up in any analysis is the work involved in treating and disposing of the high-level tank waste. This represents almost half of the entire budget for Hanford cleanup in any given year so its certainly a very significant event. This action that is proposed to manage and dispose of that tank waste and those cesium and strontium capsules will, in fact, reduce the potential risks over the long term to human health and the environment. That's why we're proposing to take the actions. It is our obligation, as the Department of Energy responsible for the site, to take actions to safely manage that tank waste and to ensure that we're in compliance with federal laws and those of the State of Washington and the regulations

that flow from those laws. So that's why were engaged in this. This is not a very common event to be doing a joint Department of Energy and State Environmental Impact Statement. It will save money and I think it will result in a much better process. It eliminates a lot of overlap and duplication that would otherwise take place so this is something that we really look forward to the final result of; producing this Environmental Impact Statement jointly with the State of Washington. Thank you very much. We appreciate you being here tonight and at this point turn it over to Mike Wilson of the Department of Ecology.

Speaker - Mike Wilson: Thanks John and thank you all for coming and showing such an interest in this critical issue. I won't re-iterate much of the process stuff that you've already heard. I know these things get tedious and that's the bad news, the good news is that because we've spent so much time coordinating and combining these processes, you have to only do this once. This was a unique experience for us in combining two environmental regulations, both NEPA and SEPA, and of which of course are usually done separately and we hope we've saved the taxpayers both a good deal of money and environmental process in the process. And again, the coordination and cooperation between the two organizations, or actually I should say three organizations, because it was the Department of Ecology and both Richland and DOE-Headquarters and the cooperation and coordination was intense right up to the last minute. And the reason I say the last minute is because this document is critical to us getting on with cleanup of the tanks. The waste in the tanks at Hanford is the single most important issue to us at the Department of Ecology. It is, I think, the single biggest problem we face out there and I think its time to get on with some actions there. We have a, I think a, a real since of urgency at the Department of Ecology over this issue at this time because there

have been a number of failed, failed plans and false starts surrounding tank cleanup over the years and I don't think we can afford another failure. Another failure is unacceptable to us and it might possibly be unacceptable to those that fund such things in other places. So I look forward to your comments this evening and thank you very much for coming.

Speaker - Carolyn Haass: Good evening. I'm Carolyn Haass with the Department of Energy, Richland Operations Office and Geoff and I, Geoff Tallent that is, are here to speak to you tonight about the Draft Environmental Impact Statement for the Tank Waste Remediation System program. I will be going over the general information contained in the EIS as well as the descriptions of the tank waste alternatives. Geoff will then follow up with the description going over the impacts associated with the tank waste alternatives and I will then come back and discuss the regulatory compliance technical uncertainties and cost associated with the tank waste alternatives. Then we'll have a brief overview of the cesium and strontium capsules which are also part of this Environmental Impact Statement. The purpose of the proposed action for the tank waste and cesium/strontium capsules analyzed in the EIS is to 1) reduce risk to workers, the public, and the environment; 2) to comply with federal, state, and local laws and regulations; and 3) to manage and dispose of both the tank waste and cesium/strontium capsules. The scope of the TWRS EIS is the management and disposal of the radioactive, hazardous, and mixed waste within the TWRS program including the 56 million gallons of waste that are stored currently and future waste to be stored in the 177 single-shell and double-shell tanks. Also, the EIS scope includes the waste of approximately 60 smaller, inactive and active, miscellaneous underground storage tanks. And just to let everyone know, it is estimated that the miscellaneous underground storage tanks contain about

250,000 gallons of waste.. The third item in the scope of work is the cesium and strontium capsules which are currently stored at the Waste Encapsulation and Storage Facility. To get a little more specific, the specific actions within the scope of the EIS include the continued tank farm operations and management; tank farm upgrades which includes upgrades to electrical, ventilation, HVAC system, waste transfer systems; the remediation and disposal of the tank waste itself; and the remediation of the miscellaneous underground storage tanks; and we can't forget the cesium and strontium capsule management and disposal.

There are certain actions that are outside the scope of this EIS and they come in two categories. 1) that NEPA documentation has already been completed which is true for waste characterization, with which an environmental assessment is associated, and the cross-site transfer system which just had a interim action EIS completed in December of 1995. The other category is NEPA actions that need to be completed in the future and those actions all deal with closure, and that is tank farm closure, decontamination, and decommissioning of facilities that will be built to used -- that will be used for cleanup of the tank waste. It will also be used to help remediate the existing soil contamination and contamination resulting from tank waste cleanup and to remediate the groundwater associated with leaks from the tank waste remediation project. We need to recognize closure from a decision-making process is not within the scope of the EIS because there is insufficient information available concerning the amount of contamination to be remediated. However, a hypothetical closure scenario, closure as a landfill, is included in the EIS so the decision makers and the public can have information on how decisions made on remediating the tanks may affect future decisions. A single-closure

method was used for all the alternatives to allow a meaningful comparison of all the alternatives evaluated for tank waste.

The schedule for the EIS as Paul Dunigan indicated earlier, was that we had a Notice of Intent that was published in January of 1994. We then followed up with an Implementation Plan that was approved in December 1995 and, as I think everyone is aware, we sent out a Notice of Availability that published the Draft EIS April 12th. On April 12th, the public comment period started and we'll continue that comment period for 45 days which is going to be May 28, 1996. Following the public comment period, we are tentatively scheduled to finalize the EIS at the end of July 1996 with a follow on the Record of Decision of August 1996.

The next thing I'm going to discuss is the description of the tank waste alternatives, but I'd like to note one thing. Every one of these alternatives includes the continued tank farm operations so we can manage the waste safely. Every one of the alternatives. The tank waste alternatives can be grouped into four major categories dealing with the extent of retrieval.

The first category is continued management. Under continued management, no waste would be retrieved and we have two alternatives associated with that. One is no action which NEPA requires us to analyze and that is where we would only do continued safe management of the tank waste. The other alternative is long-term management where we would, as I said, safely store and manage the waste but what we would do is replace the double-shell tanks twice and the ancillary equipment associated with it during the 100-year institutional control period, which Geoff Tallent will talk to later.

The second category is minimal waste retrieval. Both alternatives would remove the liquid waste from the double-shell waste and concentrate the liquids using an evaporator. The concentrated waste would then be put back into the tanks. The solids would then be disposed of in place or in situ. There are two alternatives associated with minimum waste retrieval which include one that has treatment associated with it, one that doesn't. The one that has treatment associated with it is in situ vitrification and the nontreatment alternative is in situ cap and fill.

The third category is partial waste retrieval. One alternative was analyzed under this scenario. In general, part of the tank waste would be retrieved in process while the other part would be left in place for disposal. The tank waste resulting in the fewest potential and environmental impacts would be disposed of in situ while the liquid waste and a portion of the solid waste that would result in potential long-term groundwater effects would be retrieved, treated, and immobilized.

The fourth category is extensive waste retrieval and this is where all of the solid and liquid waste practicable would be retrieved and separated by physical and chemical processing into a low-activity waste and high-level waste fraction. I want everyone to know that when I say we would retrieve it, you know, to as much as practical, means that we will retrieve up to 99 percent of the waste, which is consistent with the Tri-Party Agreement and its also consistent with the recommendations of the Tank Waste Task Force.

Three extensive retrieval alternatives with different levels of separations are showing. First of all, you have the no separations, and that alternative is where we would have no separation of the waste and all levels should be high-level waste and it would go to the

geologic repository. The ex situ intermediate separations is where we would complete some level of separations mostly cesium removal and we would have a low-activity and a high-level waste fraction with the high-level waste still going to the geologic repository. In the extensive separations, this is where we would maximize how much separation would occur so minimal amount of high-level waste goes to the repository. A fourth alternative was analyzed to present -- to present the potential impacts that would occur if DOE chose to implement an extensive retrieval alternative in phases rather than implementing a full-scale facility program. The phased approach was analyzed because of the numerous uncertainties associated with the extensive retrieval alternatives.

The preferred alternative, and I'm sorry, that fourth one is phased implementation. The preferred alternative is phased implementation and its very similar to your ex situ intermediate separations, however, you have a greater extent of separation. You are including a technetium, strontium, and transuranic element separations. Now, what I would like to do is turn the microphone over to Geoff Tallent and he's going to be discussing the impacts associated with the tank waste alternatives.

Speaker - Geoff Tallent: Good Evening. A key element of the EIS is evaluation of the short- and long-term impacts. The agencies need to understand the consequences of the actions they choose to take for two reasons. First, to make an informed decision and second, to reduce any adverse impacts that you may identify. For the sake of time, I'm only going to give a brief overview. What I'm going to provide you are the conclusions of the analyses which makes up the better part of the 2,000-page EIS. In tonight's information packet is a summary table which shows the same information I'm going to talk from. For more detail, I

encourage you to ask questions when we're done presenting, refer to the EIS, or give me a call or Carolyn a call. Both of our numbers are in the information packet.

I'll begin with summarizing, excuse me. In conducting our analysis, we found two stages of impact. First, there's a short-term impact which takes place during the times the tanks are maintained. The waste is treated using a monitoring and maintenance period. That stage lasts for approximately 100 years. Second, the long-term impacts which occur long after the treatment is done. We carried out this analysis for 10,000 years to capture the types of impacts you'd expect.

For health and safety, we looked at a number of areas including occupational and operational accidents, transportation accidents, and exposure to workers and the public during routine operations and transportation. Out of this analysis, we found two important trends. First, there is very little potential for short-term impacts to the public. The primary impacts related to health and safety are to the workers involved in the day-to-day operation in the remediation. The second trend is that the more waste that is retrieved, treated, and shipped, the greatest the potential for short-term impacts. I want to stress that the EIS is not saying that these potential risks to workers and the public are an acceptable cost of doing business. The risks are real but these types of impacts to workers and the public are largely controllable. The EIS provides the agencies an opportunity to understand these risks and to build into the final design measures that might reduce them.

Two more areas of short-term impact are impacts to shrub-steppe habitat. This habitat has been designated a priority habitat by the State of Washington because of its unique value

and the diversity of species which it supports. All of the alternatives, except for the no action, have a potential of impacting this habitat.

The final category of short-term impact is peak employment. This shows the more workers required, the greater the impacts to areas such as schools, housing, and traffic.

I want to remind you of a few important things which Carolyn stated before I move into long-term impacts. First, the analysis only shows the potential impacts from cleanup activities. There are other sources on the Hanford Site which may cause additional impacts. We analyze the cumulative impacts of the EIS but the analysis, I'll touch on that, does not include those other sources. Second, for all of the long-term impacts, except the no action, of the long-term management alternative, a similar barrier has been placed over the abandoned tanks. As Carolyn stated, this EIS is not making decisions on the final fate of the tanks and the surrounding soils. However, for the purposes of long-term analysis, we assumed this barrier was placed over them. With that, I'll move into the long-term impacts.

Unlike the short-term impacts, long-term impacts are less controllable and more difficult to predict. To examine the long-term impacts, we created several scenarios for exposure to potential populations. These include industrial worker; shore-line and recreational user; down-river users; the waste site intruder which is a scenario where someone drills a well; potential long-term accidents, and finally the onsite farmer.

I'll elaborate for a minute on the onsite farmer to show you how we approached these long-term impacts. This scenario consists of a residential farmer who irrigates crops and drinks and bathes in well water from beneath the Hanford Site. We present the risk in two ways. First, the maximum risk an individual can receive and second the population risks

spread out across a hypothetical population that is carrying out farming activities. To put these individual risks in context, the three to ten thousand numbers you see in the ex situ alternatives are somewhat higher than the federal Superfund laws cleanup goal of one in 10,000 and they're higher yet than Washington State's cleanup goal of one in 100,000.

Moving on, the next two categories show the relative impact to the groundwater and the potential land-use restrictions that may be, groundwater use restrictions that may be required, excuse me. From the long-term impacts analysis, we have learned two important things. First, the groundwater is the greatest overall pathway for future risk, and second, the ex situ alternatives leave much lower long-term impact than the untreated, in situ alternatives. However, the remaining ex situ risk in many cases is still significant. I want to remind you, that these analyses are based on conceptual approaches and scenarios and are designed to bound the potential impacts. The analyses provide, with reasonable confidence, the potential impacts of a particular scenario is followed. However, whether that scenario is actually followed is much more uncertain. We believe the analyses gives the agencies and the public a sufficient understanding of the potential impacts of these actions and allows us to discriminate among the alternatives. But this is a draft document and the purpose of this meeting tonight and the public comment period is to hear what you think. If you see anything we've overlooked in our analysis or any scenarios that we haven't examined, we'd like to hear that from you. On that, I'll turn it back over to Carolyn who has a few more remarks on the analysis in the EIS.

Speaker - **Carolyn Haass**: The next thing we're going to talk about on the tank waste alternatives is regulatory compliance. One of the things I want to tell you is neither requires

that EIS's address a full range of reasonable alternatives whether or not they comply with all federal, state, and local laws and regulations. As you can see from this chart, only the ex situ alternatives will meet all regulations while the in situ alternatives don't comply with any of, or with very few, of the regulations. There's one which is in situ vitrification. If any alternative was selected that didn't meet certain regulatory requirements, changes of policies, waivers by the regulatory agencies, or changes in laws by Washington State or Congress would need to be completed so the alternative could be implemented.

Next thing that I want to talk about is technical and uncertainty needs and cost. As you know, some of the alternatives involve complex technologies, that have not been applied to conditions within the TWRS program. In addition, there are uncertainties about the content or characterization of the tanks. This table shows the relative level of technical uncertainty between the alternatives. As you can see, as you move from the no treatment alternatives to the alternatives with high degrees of waste treatment, the level of uncertainty increases. However, there is an exception. The Phased Implementation alternative technical uncertainty is decreased because we are able to apply lessons learned from the first phase, and that can be then applied to the construction and operation of the second phase or the full-scale facility.

On the cost, you notice here on the tank, on the alternatives that we have a range of anywhere from $7 billion on in situ cap and fill up to $253 billion under ex situ, no separations, and using vitrification and that is quite a big range. One of the things I want to note here is the repository cost shown in parentheticals and those costs relate to the upper bound of the cost range. One of the things I want to tell you is the costly alternatives are showing in ranges to account for the technical uncertainties. The costs are higher for those

alternatives that involve retrieval, treatment, and disposal. The costs for the ex situ alternatives are all fairly close in price except for the no separations alternative where you have a large amount of high-level waste, because we're assuming all the tank waste will be high-level waste, and that we have a repository fee associated with that. Currently, DOE is working with, within our DOE Headquarters to change, to potentially change the repository criteria so that these costs can potentially be reduced.

The preferred alternative. The basis for identifying the preferred alternative, which is phased implementation, is to provide a balance among key factors including short- and long-term impacts to human health and the environment while managing the uncertainties with the tank waste and the technologies. Also, the Phased Implementation alternative meets all regulatory requirements and also, the phased implementation is consistent and meets the Tri-Party Agreement milestones.

Next I'm going to talk about the cesium and strontium capsules. I'm going to do this very briefly. There are three major categories of extent of action under the cesium and strontium capsules. The first one is continued management and this is where we would continue to keep the capsules in the Waste Encapsulation and Storage Facility. This is considered no action and, as I've said before, this is required to be analyzed under NEPA. The second category is onsite disposal. This is where we would remove the capsules from WESF, we would put them in dry storage, and dispose of them in a dry well on the site. The third category is offsite disposal and we have two alternatives associated with this. The first is overpack and ship where we would obviously take the capsules out and we'd pack them in

containers and we'd send them off to the geologic repository. The final alternative is vitrifying the capsules with the tank waste in the High-level Waste Vitrification Plant.

As you can see, there are very few impacts associated with any of the alternatives for cesium/strontium capsules. I'm not going to go through it because they are minor. One thing to recognize is we have minor shrub-steppe habitat disturbance and employment associated with that from zero to fifty people.

Long-term impacts. There are no long-term impacts except for the intruder scenario for the onsite disposal where someone would come in and drill right into a dry well and we feel that, we estimated that to be one fatality.

Finally, we're going to talk about regulatory compliance and costs. Only one of the alternatives currently meets all regulatory requirements, which is vitrified tank waste. And then the cost varies anywhere from $112 million for no action, and then the other three alternatives are very similar in costs. One of the things to mention here, there is no preferred alternative for the cesium/strontium capsules at this time.

What I'd like to do is turn this back over to Paul Dunigan where he will moderate the question and answer period.

Speaker - Paul Dunigan: Thank you very much. We are now ready for the question and answer session. Please remember the questions and responses during this phase are not part of the formal comment period. The purpose of this session to help clarify issues to facilitate better comments. At this point, I think we're ready to begin questions and answers. I've asked anyone with a specific question to please come to the microphone in the middle of the room so that the panelists can hear the question.

QUESTION:

Man speaking: Yes, I just had a question about the amount of waste that's leaked out of the tanks and how much waste there is down there and how's that being considered in the proposed alternatives since the materials seem to be silent on that. I notice your not going to deal with trying to excavate those wastes in this EIS or consider alternatives on that but did you consider the impacts you might have on driving those wastes deeper when you evaluated the different options. So I just want an answer to that question.

ANSWER

Geoff Tallent: To speak to whether we considered it or not, yes, we did consider the wastes in the soils around the tanks and the possible effects of driving those contaminants deeper. That is covered in the cumulative impact section of the EIS. I don't think you'll find it discussed in the detail that we looked at the actual impacts from the actions we're going to take but we do consider it.

Carolyn Haass: Yes, when we evaluate the removal of the waste from single-shell tanks, we do take into account leakage from the retrieval process and that is added into your cumulative impacts of the existing contamination that already exists.

QUESTION

Man, not at microphone: OK, but the first part of my question does he know the volume of the waste underneath and where is that going to be dealt with or is it going to be dealt with. If not ....

ANSWER

Geoff Tallent: .....that has occurred during past practices. That's where it would be addressed and a major portion of that EIS would be the cumulative impact of TWRS remediation and closure so you would get the two impacts combined at that point also.

QUESTION

So you had on the preferred, on all the alternatives, you had said that you are planning, I guess, to cap the tanks to prevent leaching, and so doesn't that have an impact on whether or not you might try to go down there and excavate?

ANSWER

Geoff Tallent: Maybe we should clarify that. For the purposes of our analysis, in the long-term impacts we assume that a cap is in place. That is because a cap is just about the minimum extent of final closure you can take in these tank farms so it seems like a reasonable and conservative assumption to make. However, we aren't making decisions so this EIS will not actually make a decision to place a cap there.

Carolyn Haass: And one of the answers to your question on the volume of waste that already exists. We don't know exactly how much but we have an idea of what potentially could have leaked. We don't have an exact.

Geoff Tallent: That in fact is part of the reason why the agencies chose not to consider final closure at this time. There's still a great number of efforts going underway to find out the exact nature and extent of the contamination around the tanks. But we need to know that before we can design a final closure.

QUESTION

Man speaking: I have several questions. First one is what do you consider the extent of your waste characterization of 177 tanks at this point. Could you expand a little bit on where you stand on the waste characterization before I ask my question. How much do you consider complete on a tank-by-tank basis at this point in time?

ANSWER

Chris Bader: Let me take a stab at that. The characterization program really has started to pick up in terms of the number of samples that are being taken. We have basically closed out the parasite issues, which would amount to about 18 of the tanks. We have taken samples from approximately 60 percent of the tanks now of the ones that will be vitrified on the first phase of our plan implementation have been 100 percent checked and we've already, we understand what the constituents are in those tanks so we understand at least the first phase of the chemistry and what is going to be required to perform the

mobilization. I don't have those statistics, I'm going to give you some round numbers, but I can certainly make those numbers available to you.

Geoff Tallent: I can add a little bit maybe perhaps for the purposes of the EIS. We used a conservatively based composite waste stream for a short-term impacts for those impacts which result from actually running the waste through treatment. For the longer-term impacts, we used the existing information on the tank wastes which is based on historical process knowledge. Its not based on actual characterization right now. But for the purposes of long-term impacts spread out over 10,000 years, we felt it was an adequate source of information.

QUESTION

Same man speaking: Well that was one of the questions I had because the historical records are not always that accurate and my other concern of course is how you get a good representative sample when you have a million-gallon tank. The question that I had was do you have any feel that out of 177 tanks then based upon that characterization and historical records, how many of the tanks contain TRU wastes?

ANSWER

Carolyn Haass: We don't have that information because, as we said, we used a conservative composite waste stream for evaluating this EIS.

QUESTION

Same man speaking: OK. What was the method of retrieval that you were proposing as an assumption for these exercises.

ANSWER

Geoff Tallent: Initially, sluicing. Actually sending water into the tanks and washing the waste out. If that doesn't retrieve 99 percent, then a follow up with a robotic arm retrieval.

QUESTION

Same man speaking: OK. I may comment on that later. I was involved in the sluicing back in the 76 and 77 timeframe and that created at lot of liquids into the soil.

ANSWER

Geoff Tallent: Right, and we built that into our assumptions for the impacts on the single-shell tanks. We assumed 4,000 gallons of waste per tank, which is fairly a conservative assumption, would leak out into the surrounding soils.

Carolyn Haass: And we are assuming that on all 149 single-shell tanks not just half or a quarter but we are assuming 4,000 gallons on each.

QUESTION

Same man speaking: OK. With respect to the capsules, my recollection was there were two capsules that had failed. Is that the correct number for it as far as you know at this time? Is there any more that has come up since the initial two?

ANSWER

Carolyn Haass: I really don't have that data because we don't look at whether capsules fail or not.

QUESTION

Same man speaking: Did anyone ever determine as a part of the assumptions what was the mode of failures of those capsules.

ANSWER

Carolyn Haass: No we did not.

Geoff Tallent: We don't look at that in this EIS. We just assume they're being returned. We don't go too far into the reason why they are being returned.

QUESTION

Same man speaking: One reason I ask that question is you made the comment there is no long-term impact of long-term storage and I can make that assumption, that statement unless you understand what the mode of failure was that the capsules have failed. So I think it's a concern I have.

ANSWER

Geoff Tallent: I think we can shed a little bit of light on that though long-term impact looks at a 10-year storage period as its storage alternative. And in 10 years, we didn't see any of those capsules breaking up presenting a significant risk. But the EIS does make it clear that after those 10 years, you would have to go on and make a new decision on what to do.

QUESTION

Man speaking - not on microphone: I believe he was asking the question why did they return them in the first place?

Geoff Tallent: My understanding is the hypotheses that its mode of failure of those capsules is related to the actual removal of those capsules from the underwater storage into the air and that at repeated cycles, the capsules fail.

QUESTION

Man speaking: I have two questions. One of them is in a way a follow up on a characterization question of the gentleman. You have two combined ex situ/ in situ alternatives discussed which you speak of remediating in large fraction of the risks while remediating only a small fraction of the tanks. The question I had written down was what date or assumptions were used for these alternatives? From characterization data from your answers to this gentleman, I don't think you know well enough what is in what tanks to say how many tanks you have to treat to get what fraction of those long-term risks.

ANSWER

Geoff Tallent: I think you're correct in assuming we use the historical process information to base that tank-by-tank retrieval on and there is a great deal of uncertainty in that. That is the type of thing that needs to be followed up in the actual detailed design and how you would implement one of those selected retrievable alternatives.

QUESTION

Same man speaking: My opinion is, you are biasing toward in favor of those alternatives by assuming that you can achieve that much remediation with just a few tanks.

My second question concerns high-level waste disposal cost. On page 336 of the draft, it says the waste packaging assumptions and disposal theme methodology will be reviewed with the Office of Civilian Radioactive Waste Management and revised as necessary for the Final EIS. There are two questions, what is the status of this review, and will it be completed in time to be used in the Final EIS?

ANSWER

Carolyn Haass: The draft EIS currently uses a report that was published in September 1995 that said the cost per canister is $356 thousand dollars. What has occurred since that time frame is we have received a memorandum from the Office of Civilian Radioactive Waste Management, whatever its called, OCRWM that we can start using the larger canister size, so it looks like we'll potentially be able to substantially reduce those costs. We will be able to go to a larger canister size in the geologic repository itself rather than using a DWPF canister.

QUESTION

Same man speaking: That will be done for the Final EIS?

ANSWER

Carolyn Haass: Yes it will. We already have the memorandum in hand. The only thing we need to determine is if there is any cost difference between the $356 for the DWPF canister and the larger canister that we can potentially use. We are waiting for that answer.

QUESTION

Same man speaking: Thank you.

Paul Dunigan: Do we have any questions at this time.

QUESTION

Man speaking: One of the questions a couple of us were wondering about under accidents during remediation is that there were two terms used. Occupational accidents, the fatalities, and also radiation, I guess it's radiation, in hazardous sites I assume, operational accidents. Did you find out what the difference between those two was? You have radiation exposure as a separate category.

ANSWER

Geoff Tallent: I can answer that. Occupational accidents are accidents derived from areas such as labor statistics from similar DOE sites. These are falls from scaffolding and ladders, that type of thing. The operational accidents are accidents in the actual operation in the treatment of the waste something like a pipe breaking and spraying radioactive and hazardous waste into a room where workers are present.

QUESTION

Man speaking - not at microphone: So its a physical accident not a radiation exposure associated with the processor?

ANSWER

Man speaking: The operational (accident) may be a radiation exposure associated with the process but its as a result of an accident not normal operations.

QUESTION

Same man speaking - not at microphone: Thank you.

QUESTION

Man speaking: Geoff, just a question for you. When you went through all of those transparencies, they went by pretty quick for me and maybe for many of the other folks. If you have an opportunity during the question and answer period, would it be possible for you to run by some of the highlights there again and point out number of cancer fatalities you are expecting say maybe on a per year basis or something like that comparing the alternatives. Point out the highlights for people. Carolyn has a nice pointer up there you can use for that.

ANSWER

Carolyn Haass: Thanks Jerry.

Geoff Tallent: Would you like me to take a few minutes and run through that? Jerry has a question right now. Go ahead.

QUESTION

Man speaking - not on microphone: My question relates very closely so I think it would be worthwhile.

Another man speaking: Can I stick a question in there? Would you please try to compare the fatalities in the EIS to what are called normal fatality rates for the Tri-Cities due to cancer?

ANSWER

Geoff Tallent: Ok, I don't have specific statistics for the Tri-Cities. This across the country, I guess, is approximately a one in three chance of developing cancer.

QUESTION:

Same man speaking: That would be very worthwhile to show that.

ANSWER

Geoff Tallent: I can take a minute here to run through some of those numbers again.

Ok, I recognize that we went through this fairly quickly earlier and also these overheads are fairly difficult to read, but all this information is there in your packet on the table. I don't want to take too much of your time here because we could probably really get into boring you with the details here.

Start with potential fatalities from radiation exposure. I already touched on the operational versus occupational accidents so we will move on to the next couple of columns if you're looking at your table.

QUESTION

Man speaking: Geoff, so is that cumulative for 100 years? Is that what you have right now?

ANSWER

Geoff Tallent: Yes, for the duration of the remediation.

QUESTION

Same man speaking - not on microphone: So in other words, you get four fatalities in 100 years of operational accidents.

ANSWER

Geoff Tallent: Yes, and these are based on our assumptions for how the processes would work and we keep those processes within the allowable health and safety limits, but never-the-less, there is a statistical risk to the worker of developing cancer. This is not to say that in the final design we'd necessarily let this go forward but this is if our hypothetical approach is carried through.

Carolyn Haass: Jerry, not all of them have a 100-year remediation duration. On only the continued management alternatives do which were the no action and long term. The other ones are actually specific to the alternatives.

Jerry: I understand, thank you.

Geoff Tallent: So moving across transportation exposures, these are exposures from moving the waste. These are not exposures from moving the high-level waste to the offsite repository. That is shown in a separate column. So these are transportation exposures from the handling and movement of waste around the site. And this is a similar situation to the operational exposures. This would be without an accident under normal operations. This is the statistical probability of workers developing cancer.

The next column is transportation accidents. These are fatalities from accident conditions while moving waste around on the site. The final column is high-level waste transportation accidents. I should point out because you can see that these numbers are very low. These numbers are low because the probability is very low as your table shows in the footnotes. These are presented for comparative purposes as risk times probability. So for instance if, although the probability is very low for a high-level waste transportation accident, if it were to occur, you would get fatalities numbering from zero to eight. That is if a canister were to break open during transportation in an urban area. That is the highest risk scenario.

Next column is, we're back to occupational and operational accidents which I already addressed. Did you want long-term impacts as well?

Man from audience: Sure.

Geoff Tallent: I could bore you for probably hours with this. Ok, we'll go back to scenarios here. The first scenario is health risk to the industrial worker. This is a scenario where we have a worker onsite eight hours a day, five days a week. The maximum risk to that--in this worker, the primary pathway I remind you is groundwater, so this worker is drinking from a well at the highest concentration in the plume at the point in time when that concentration is at the highest. And these are the numbers that shows. That is the maximum exposure. The second one is a hypothetical set of industries with workers out there, and I don't remember the number off the top of my head. It's about

2,400 workers. They maintain a steady state of 2,400 workers over 10,000 years; those are the numbers you would see in fatalities.

Man from audience: ..... 10,000 years?

Geoff Tallent: Yes, cumulative to 10,000. That is not per year, that is, and I should point out those numbers are not necessarily like I said for the maximum exposure, those are for an expected exposure distributed across a contaminated plume. The next is health risk to the shoreline user. This is a scenario of somebody who is out for two weeks per year 24-hours per day consuming water that is seeping out from the springs and seeps at the Columbia River and eating fish and meat that they have hunted along there which have also been consuming this water. Those are the maximum risks at the seep with the highest concentration at the highest point of time. The other one is spread out over a 10,000 year scenario and that is an assumed number of workers or users over several generations. About 2,000. The next column, downriver users, this is again a 2,000 year fatality expressed over a hypothetical community of 500,000 people living downriver, irrigating their crops with the water from the river, and drinking and having recreational activities such as swimming in the river. 500,000 is the number we chose because that is approximately the population that lives down the river now. As you can see that those numbers show up, that those risks are pretty low. There is a lot of dilution that takes place in the Columbia River before that water moves downstream.

The next column is the Waste Site Intruder. The scenario here is somebody who drills a well into an abandoned tank shell. You can see these numbers are quite high particularly under the no action alternatives or alternatives that leave waste behind. If the person pulls up any soils while they're drilling those wells, they'll probably die from cancer. There is a final column on this slide is the Post Remediation Accident. This is a worst-case accident than can happen after remediation and it really only applies to the no action and long-term management alternative. This is because the worst-case accident we could come up with was an earthquake breaking the top of the tank dome and collapsing it. This is an exposure to workers and residents in the area. However, under the other alternatives where it doesn't apply, we fill the tanks with gravel so that is not a likely scenario. Maybe we will go back to the farmer for a minute here. This looks at health risk to the onsite farmer which I talked to a little bit in the presentation. Again, this is another scenario that is carried out over 10,000 years. This is a farmer who irrigates crops and drinks and bathes in contaminated groundwater. The maximum risk scenario is using from the well at the highest concentration in the groundwater plume at the point of where that concentration is the greatest. The 10,000 year scenario distributes that across the farming community, I want to say 4,000 people, which is roughly equivalent to the density of farming communities already in the eastern Washington region. We assume those communities stay constant for 10,000 years and that their wells are distributed across the contamination in the plume. That is it for what

I really didn't talk to in the presentation. I hope that answered your question, Perry.

QUESTION

Man speaking: Can you explain how come, what the assumptions are that would allow for the result of the in situ vitrification to be a lower risk than ex situ vitrification. In other words, what didn't you do about remediation of the tank after you removed the waste.

ANSWER

Geoff Tallent: The answer is very straightforward. In situ vitrification (is a lower risk) because of the nature of the process. You send down your electrodes outside of the tank shell so you are capturing the residual waste that may have been left in the tank and some of the contaminated soil surrounding that tank. Under the ex situ alternatives, you remember, we assumed that one percent of the waste is left behind and with respect to the single-shell tanks that some of the contamination may have leaked out during retrieval. That is what contributes to the risk under the ex situ alternative.

QUESTION

Same man speaking: So don't you think that in terms of appropriately comparing alternatives you should have also presented a set of comparisons of post-closure. In other words, if you use in situ vitrification for example after remediation and removal, you would have a totally different picture of long-term risk here and you're leaving it out.

ANSWER

Geoff Tallent: Right. We went as far as we thought we could by putting the hypothetical cap over the tanks as a post-closure scenario recognizing that in situ vitrification does set out as a little bit different, but it really is a very different approach to remediating these tanks. We could come up with no other approach that we thought was reasonable to show any other post-remediation activities or closure activities.

QUESTION

Same man speaking: Ok. Then, if we can go back to the operational accidents during remediation fatalities. Can we do that?

Ok. Operational would include fatalities from accidents. What is very bizarre here is, we have got new risk data sheets for instance that show number of fatalities from operational accidents but for the workforce alone that are a magnitude higher, for public another magnitude higher. We have got a problem here comparing that and just saying that we multiplied it by probability factor, you have got to do some explaining since we all, the site cannot put an estimate on the probability or the occurrence probability of these operational accidents at this time.

ANSWER

Geoff Tallent: Right. We multiplied it by the probability for the sake of comparison to line these alternatives.

QUESTION:

Same man speaking: By what probability? There is no probability that is an acceptable probability that can be applied to these, many of these scenarios today.

ANSWER:

Marc Nelson: Can I respond to that a little bit. The probabilities are thoroughly analyzed and discussed in the appendices of the EIS and how those were developed and then they were brought forward into the Chapter 5.0 where we show both the accident if it occurred and multiplied by the probability. For the summary, we couldn't pull all that information up into the Summary so that is why you don't see it.

QUESTION:

Same man speaking: So which appendix do I need to look at?

ANSWER:

Marc Nelson: That is Appendix E

QUESTION:

Same man speaking: Appendix E. And can you just explain how you were able to calculate probabilities of events that are still officially considered as not having the ability to calculate the probability for.

ANSWER:

Marc Nelson: There are things like spray releases where you can calculate the probabilities for. We have Mike Harker here.

QUESTION:

Same man speaking: Which stuff, did you use like for instance, the probability of a small explosion in a tank?

ANSWER:

Mike Harker: Yes. We looked at all of the potential accidents that we could think of that occur from that operation and chose the one that had the highest consequences and that is the one we brought forward.

QUESTION:

Same man speaking: And what was the one with the highest consequences?

ANSWER:

Mike Harker: It depends on the alternative. For most of them, it was the spray release. I think for in situ vitrification it was an explosion that blew out the HEPA filters.

QUESTION:

Same man speaking: So you did not use the potential for an explosion in the tanks during the remediation period as currently why the tank is on the watchlist and poses a potential for explosion and we don't have a calculation for that risk. You did not use that?

ANSWER:

Mike Harker: That one we did not do because as we were doing them, they were developing the information for the final safety analysis report. So for an

explosion caused by an earthquake for instance where a tank dome collapse, we don't have that particular data.

QUESTION:

Same man speaking: Don't you think that is kind of significant?

ANSWER:

Mike Harker: Pardon me?

QUESTION:

Same man speaking: Don't you think that is kind of significant? And if the risk data sheets can include an estimate of fatalities why couldn't you?

ANSWER:

Mike Harker: I didn't understand Jerry, I'm sorry.

QUESTION:

Same man speaking: Two questions here. One is don't you think that is significant?

ANSWER

Marc Nelson: Its important for the Final EIS that the earthquake analysis be completed and we include that in the document, yes.

QUESTION:

Same man speaking: And if the risk data sheets could calculate a range of fatalities from an explosion which is not due to an earthquake and have trouble wondering why you couldn't use that data.

ANSWER:

Marc Nelson: The risk data sheets do not go into the depth of analysis that we do. Your other question was about an explosion where? I didn't quite hear you.

QUESTION:

Same man speaking: A watchlist tank explodes hydrogen gas explosion or an organic explosion.

ANSWER:

Marc Nelson: Mike, do we have a tank explosion?

ANSWER:

Mike Harker: We have an explosion caused by an abrasion in a hydrogen tank which is based on analysis that was provided by Westinghouse and it was based upon an engineering judgement.....

ANSWER

Carolyn Haass: And Jerry, the risk data sheets were based on that tank. The information that Mike just gave you for the hydrogen explosion.

Mike Harker: I will look in the appendix and find what you the probability for the accident.

QUESTION

Same man speaking - not at microphone: Right, right - that is all in Appendix C.

ANSWER

Carolyn Haass - Jerry, we'll be more than happy to show you where it is in E and how it follows up into Chapter 5.0 of Volume 1. To show that to you.

QUESTION

Same man speaking - not at microphone: Ok. I appreciate that. Oh, and one more question. Can you all explain how you utilize the tank waste task force recommendations and in particular the advice of the tank waste task force yet you not utilize any assumptions about the high-level waste repository?

ANSWER

Carolyn Haass: We do take the recommendation of the tank waste task force that the preferred alternative does remove 99 percent of the waste, which is consistent with the recommendation as well as being consistent with the Tri-Party Agreement.

Geoff Tallent: I missed the second question. The second part of your question Jerry was why didn't we take the recommendation of the tank waste task force to not include repository assumptions into our decision making.

QUESTION

Same man speaking: Right, there is a task force who explicitly said you should assume that we will not have a repository.

ANSWER.

Carolyn Haass: Right. The EIS presented a hypothetical repository.

Geoff Tallent: We debated back and forth quite a bit about that Jerry, whether it should go in and how exactly it should go in because there is a great deal of uncertainty about the repository configurations of waste being delivered there and cost of those canisters.

Carolyn Haass: And the size of the canisters.

Geoff Tallent: And the size of the canisters. But we did feel that repository costs were a realistic part of the costs of sending this waste, ultimately vitrifying and sending this waste, to a repository but felt it was important to put in there. Wherever the assumption settled out here for this Draft EIS, they are not ideal I guess from Ecology standpoint but they were the latest referenced information that the Department of Energy had put out.

Carolyn Haass: One of the other reasons is from an equitable comparison of the alternatives, you had to go through final disposition of the waste when you were developing the cost or they wouldn't, it wouldn't be an equitable comparison. So you had to include all the costs. But do remember that in the appendices and Volume 1, the costs are broken out and we are very specific on what is related to all the aspects, including the repository fees, and we go through the assumptions that we used to develop the repository fees.

Geoff Tallent: And that is also part of the reason you will see in the table that was passed out in Carolyn's presentation, not in the summary, but in the text of the EIS, those repository fees are kept apart from the total costs, from the other costs so you can have a handle on what those fees are.

Paul Dunigan: Do we have any other questions at this time? Yes please.

QUESTION

Man speaking: Sorry, one more question. On the occupational and operational accidents when - go down through the list basically you're saying there is no significant difference in any of the options and would someone explain to me how that can be when the removal types of activities must involve more personnel hours involved with the removal and the transportation in those kinds of things is supposed to leave in place.

ANSWER

Geoff Tallent: Right, I think that we can explain that. The no action and the long-term management as we said in the presentation do assume institutional controls for 100 years. So under those scenarios, you have 100 years of workers out there, many less than you do under the retrieval alternatives or for instance the in situ cap. But they are there for a much longer duration for the likelihood of those accidents continues for longer periods of time.

QUESTION

Man speaking - not on microphone: Undeciferable.

ANSWER

Geoff Tallent: Right. Exposure numbers do come out lower for the no action alternatives. It's the occupational, the physical accidents, which results from having the existing workforce out there for 100 years and that is quite a number of labor hours and we used DOE's statistical averages and that is the number of

fatalities that might be expected. It's really due to the long duration of the alternative rather than the complexity of the operation or the hazard of the operation.

Paul Dunigan: Any other questions? If there are no other questions, lets take a 10-minute recess and then reconvene for the public comment portion.

Limit your oral comments to 5 minutes for individuals or 10 for organizations. If you are representing an organization, please identify that fact along with your name and address. If you have any written comments or written copy of your oral comments, please give them to me at the time you come up to the microphone to make your comment and with that, I guess we're ready to go. The first name on my list for oral commentors is Harold Heacock.

Speaker - Harold Heacock: I am Harold Heacock from Kennewick, Washington, I am representing Tri-City Industrial Development Council, thank you for the opportunity tonight to present the views of Tri-City Industrial Development Council (TRIDEC) on this subject which is of major importance to the future of the cleanup program at Hanford. TRIDEC represents the business community of the Tri-Cities on matters related to Hanford. We have been designated by the Department of Energy as the one voice spokesman on economic issue related to Hanford. Our membership of over 550 firms, individuals, and organizations represents a wide spectrum of the Tri-City business community.

We consider the cleanup stabilization processing and disposal of the tank wastes to be the focal point of the Hanford cleanup program. We also strongly support the Tri-Party Agreement as the definitive document for the Hanford cleanup program. Compliance with

TPA is a major responsibility and obligation of the department. The department must get selection of alternative for cleanup the tank wastes maintain and comply with its commitments under the TPA. Several of the alternatives considered in this Draft EIS do not meet the requirements of either the TPA or statutory cleanup requirements for waste cleanup and disposal and should not be considered further. Continued management and minimum waste retrieval alternatives are not acceptable solutions to a major environmental problem since they do not include the retrieval of the waste from the single-shell tanks. We say that any tanks waste from remediation program must include removal and processing of the waste to an acceptable solid in order to eliminate the environmental threats resulted from any retention of the wastes of tanks of questionable integrity in the lifetime. We also do not believe that the technical feasibility of several of the in situ treatment processes has been demonstrated adequately to seriously consider them as viable alternatives.

We support the department's preferred alternative of phased implementation from an ex situ intermediate separation process. This provides for the greatest protection in the environment including the protection of the ground water consistent with the reasonable projected cost, the disposal of vitrified high-level wastes in a national waste repository, and an acceptable degree of risk. Regard to the department's currently planned method of implementing this program, which is based upon the privatization of the work performance, we are not addressing this issue at this time. However, we have previously supported the privatization concept in other statements. Rather, we wish to again call the department's attention to lead the support to the TPA's commitments. Funding of the privatization program

through the proposed budgeting set aside at the expense of other hyped Hanford site cleanup programs, and the contract failure to meet all TPA commitments is not acceptable.

A secondary issue addressed in the Draft EIS is the disposal of the cesium and strontium capsules currently stored in the WESF at the B-Plant. We believe that any action to dispose of the capsules should be deferred at this time so long as an adequate degree of environmental protection is maintained in their storage. Pending the determination of their potential future utilization, we believe this assessment should be retained. This position is consistent with the Draft EIS since the high-level waste in situ vitrification plant operation is at least ten years away. On disposal of these capsules with other high-level wastes is the preferred solution to the disposal of the capsules. Thank you for the opportunity for the center of use on the subject.

END SPEAKER - Harold Heacock

Thank you very much. For the record, I have been given a copy of the written statement of TRIDEC, and I will give that a number, exhibit number 1. Our next registered speaker for tonight is Dale Bartholomew.

Speaker - **Dale Bartholomew:** Based on the discussion that we had this evening, I have elected to incorporate my comments into a written comment and I choose not to speak on a oral basis tonight.

END SPEAKER - Dale Bartholomew

OK, thank you very much. Our next registered speaker is A. L. Bolt.

Speaker - **A. L. Bolt:** Al Bolt from Kennewick, Washington. I represent myself. I have a comment on the Draft EIS disposal cost. The geologic disposal cost presented in the

Draft EIS are based on the linear extrapolation of the average container disposal cost provided by the document from DORW0479 referenced in the EIS, Analysis of Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program. This analysis cost in this document was for a specific scenario of waste in a number of canisters. The linear extrapolation of this average container cost - disposal cost from this previous reference to all the TWRS alternatives does not meet the requirements of the Nuclear Waste Policy Amendments Act of 1987 and the Federal Register Notice 52161, the Civilian Radioactive Waste Management Calculating Nuclear Waste Disposal Fees for the Department of Energy Defense Program Waste.

Federal Register Notice 52161 identifies, in detail, the method to be used in estimating the disposal fees for the Department of Energy Defense Program high-level waste share of the Civilian Radioactive Waste Management System costs. The Federal Register Notice 52161 cost allocation is based on the concept of full cost recovery with sharing formula supplied to all fixed and variable cost system or system cost components. The assumption of the linear extrapolation of average container disposal cost in the Draft EIS, greatly under estimates the disposal cost for the Extensive Separations alternative and greatly over estimates the disposal cost of the No Separations alternative. Example, disposal cost variability for alternate high-level waste container sizes and high-level waste volumes resulting from No Separations, intermediate separations, and extensive separations using the methodology of the Federal Register Notice 52161 are provided in a document by TRW for Environmental Safety Systems and it has long numbers on the copy I will give you but it is assessed on the pre-closure system

cost health and safety in facts of Hanford high-level vitrification options on the civilian radioactive waste management system. This document is dated April 27, 1995.

I am requesting with the Draft TWRS EIS be revised to incorporate high-level waste disposal costs calculated with methodology specified in Federal Register Notice 52161.

END SPEAKER - A. L. Bolt

Thank you very much. Would you please state your address for the record. Okay we have it here. What I have been given is a copy of a letter Mr. Bolt sent in dated May 2, 1996 and I will assign that exhibit number 2. Oh and one more thing. Mr. Bolt's address shown on the letter is 1019 South Irby, Kennewick, Washington 99337. Our next registered commentor is Danielle McMurtree. Pass? Okay, thank you very much. Our next registered speaker is Jerald Pollet.

Speaker - Thank you. Jerald Pollet, Heart of America Northwest. Need my address for the record? 1305 4th Avenue, No. 208, Seattle, Washington 98101.

Going to start tonight by asking that a little more attention be paid in the materials and the Final EIS through the advice of the Tank Waste Remediation System taskforce. The taskforce urged the three agencies from our putting together this EIS to explicitly not utilize a hypothetical repository in assessing costs and it is nice to go right after someone else whose commented on the same issue.

The TWRS taskforce said we have to assume canisters stay at Hanford. That is not only a reasonable alternative, unfortunately it is the realistic alternative, and it is not appropriately considered in the EIS. So what we need to see is - what are the long-terms costs and impacts from having canister storage here at Hanford. What we need to remove from

your total cost estimates is the entire set of repository fees. It is not sufficient to say that we broke out the repository fee in the details because you are still presenting a total range of cost estimates that the public and media and the decision makers are actually going to look at and they're going to say by gosh, that No Separations alternative costs a quarter trillion dollars. What kind of lunatic wanted No Separations? And what the decision makers, public, and media will not know is that, in fact, No Separation alternative actually has a rather reasonable price tag of below 30 billion dollars and that 211 billion dollars is a hypothetical repository fee for a hypothetical repository. A fee charged by the department to itself for repository which it admits in the EIS will never have the capacity for this. So it is a hypothetical fee for a hypothetical repository that the one certainty is does not have the capacity for it ever opened. There is something wrong with that picture and presenting it to decision makers, the public, and the media, it is apparent to the casual observer that someone is trying to skew the results.

The costs have some other strange anomalies. For instance, some of the cost estimates for vitrification alternatives today are basable upon some market considerations in terms of what vendors are saying they believe they will be able to bid. But what is kind of incredible in this EIS is continuing the historic practice at this site of having a capital contingency built into all the cost estimates of not just 30 percent here but 30 to 50 percent. It is really hard to talk about how the TWRS program is reaming in its costs when its capital cost estimates have a contingency added in of 30 to 50 percent. It is very disturbing and from point of view of how this is then presented to Congress, what we have is a set of alternatives that may emerge that are the ones that are necessary to meet the legal requirements of removal, retrieval, and treatment which are inflated because of their capital considerations by 50 percent and which

are inflated by up to $211 billion dollars by a hypothetical repository fee and then we wonder why Congress may not want to fund vitrification. Once last closing thought for our comments tonight which is if you have a hypothetical repository fee for the hypothetical space at a hypothetical repository and the hypothetical land, then for the very real cost to the three tribes to the future generations of this region why isn't there assigned a cost for the permanent use of land in the leave it in place alternatives that are clearly being shown a preference through out all the cost estimates in this EIS. You need to consider internalizing the externalities and I would say that is less hypothetical and I think that the public could provide you and the tribes some very real cost estimates for creating a sacrifice found under the leave it there scenarios. Thank you

END OF SPEAKER - Jerald Pollet

Thank you. Our next commentor is Tom Carpenter.

Speaker - Tom Carpenter. I am Tom Carpenter. I'm with the Government Accountability project and the addressed is 1402 Third Avenue, Suite 1215, Seattle, Washington 98101 and the mission of our organization is accountability in government and we achieve that partially through providing representation, both legal and advocacy representation to whistle blowers. Workers who expose fraud, waste, and abuse which threatens the public health and safety at sites run by or owned by the Federal government and we have had a special focus on Department of Energy since 1985, here at Hanford since 1988 when we began the representation of a number of workers many of whom at Hanford, many of whom are scientists and engineers and nuclear process operators within the tank farm area at the Hanford Site. And, I come to this situation at the tank farms with a knowledge of history,

I am sure some in this room are also aware of this history, which can not be ignored and should be taken into account in which I will share a little bit with you tonight. The history of the Hanford tank farms is one of secrecy and threatens the public health and safety and deception on the public. Not only that, but workers who attempted to bring to light serious environmental problems and serious health and safety problems at the tank farms have suffered terrible reprisals in the form of career actions against them. And some of the things that were brought out, especially in the late 80's and early 90's concerning organics in the tanks and hydrogen gas buildups in the tanks. Workers were often heavily criticized or publicly ridiculed in the press for being wrong. Hazards that today are publicly accepted and even embraced enthusiastically by regulators and it is hard to come here and listen and read the documents and have a whole lot of trust in the same set of folks who created the situation to now go out and propose scenarios for cleaning it up. I have a real problem with the same group of people who denied that there was ever a problem about ten years and five years and even three years ago now telling us that the risks for such and such a scenario was so much that explaining to us this alternative means this much money or that alternative means this many lives and I guess what I am trying to get to is I think the problem at the Hanford Site is not one of science, I think it is one of management. I think that we have got waste that have leaked into the ground under the tanks. The figure varies. I have heard 950,000 gallons is the official figure of what has leaked from the single-shell tanks into the ground; however, a number of engineers out there have told me that, for instance tank 105A which had a serious steam event back in the mid-60's resulted in a great deal of contamination going down to the ground underneath the tank and the 500,000 gallon tank ended up needing over a million

gallons of cooling water. So cooling water or evaporating water that was not counted as leaks to the ground. So that 950,000 gallon figure is not accounted into there. More recently, we hear that cesium could possibly be heading toward the ground water that is in the vadose zone underneath the tanks. This is an interesting finding because five years ago, John Broder, who is a geophysicist out there, was trying to get the attention of the Hanford officials saying you need to do better in monitoring the vadose zone and the soil underneath the tanks and eventually he lost his job but managed to be put back into Hanford under the auspices of another contractor, Rus Geotech, which ended up doing the type of state-of-the-art modeling that, in fact, showed in December of 1995 that there could be a problem with cesium 125 feet down in the vadose zone, which is a lot further than led to be believe the cesium would ever travel. It is a very significant environmental finding and yet the public was not told about the cesium possibilities until mid February and then only reluctantly and I wonder why that is. Why did it take over a month and a half for folks to be informed about these findings. So, again we have whistle blowers bringing information out about problems in the tank farms, about problems in management and I guess my bottom line is that I would like to see some meaningful management reform, some ethical folks with integrity in charge of doing whatever it is you're going to do out there, with whatever scenario you choose because the best laid plans can not be effectively implemented by incompetent folks. You can have a great plan but it won't work if your not honest, if your not accountable. So that is my concern and that is my comment for tonight. Thank you.

END SPEAKER - Tom Carpenter

Thank you. Out next registered commentor is Richard Belsey.

Speaker - Richard Belsey. Thank you. I am Dick Belsey. I reside in Portland, Oregon and I work with Physicians for Social Responsibility. I first got involved actively working at the site with the tank waste task force in 1992. DOE without telling the stakeholders, actually for a long while, started what was called a rebaselining to look again at the plan for tackling the tank wastes at that time. They took the easy way out in the original Defense EIS looking at the 28 double-shell tanks and said that in the year 2004 they would look at what to do about the single-shell tanks. In the short interval of single-shell tanks were failing here there and the other place and so they realized that, in fact think they may not have realized, but the stakeholders told them in the Defense EIS hearings that they ought to take the serious stuff first and also clear some space in the double-shell tanks to handle that. So after the rebaselining, a group of citizens were brought together and in a 5-month period, there was an intensive, intensive public involvement program involving a tank waste taskforce of 30 people or so. Diverse backgrounds, half are from Tri-Cities half from other places in the region, and also coincidently, an intense...intense public involvement program in four cities, actually five cities, three or four public meetings at each step of the gain and what came out of that was a public involvement that I have not seen before or since. We have the Hanford Advisory Board now, which is acting almost as a surrogate for public involvement and I am really delighted to see the large turnout from the Tri-Cities area for this meeting. But the region and the local people agreed, or at least in the Tank Waste Task Force, that to change the strategy work more on the single-shell tanks and to deal with another important issue and that is that instead of having high-level glass for the high activity fraction of the high-level wastes and grout for the low activity fraction, they said we should go with glass and glass for

the two fractions. And they made it very clear. What did not come out for me until later was why grout did not work at Hanford. Grout did not work because we had so many processes going on. At Savannah River, they are today using grout because they were able with relatively simple separations to clean out 99.99 percent of the high activity fraction. But Hanford kept on, the Hanford's performance assessment kept on bouncing back over, over, strung out over time saying give us more information, your I-129 releases from the grout are still rising at 10,000 years. You at least have to model it out to know where it is going to turn the corner. I raise this question because we have re-opened all of those issues almost like re-opening a wound and looking at an infection again and saying why are we doing this and I would council that in fact you all list other stabilization forms (grout and ceramics) in this Draft EIS. How did we come to glass. There has been both a rich scientific literature about stabilizing radionuclides in glass going back 20 or 30 years and whereas with other substances there is spotty science and particularly with ceramics and grout there are highly variable reactivity. You go down to Savannah River it is almost like a witches brew. They stir it up and they have to use this particular kind of stone or else the whole thing does not gel and same thing with ceramic. So from my perspective, science wise we have to be careful about changing the stabilized waste form and we also now have about a 20-year, nearly a 20-year experience, not our own, but with other people using glass particularly for the high-level wastes. So I think that we should clearly not make any change in the waste form because of the inherent delay that will come about and the one thing we can not afford to do is to delay. The delays have cost nearly a billion dollars now and every year we delay costs that much more with by and large no real value so we got to get on with it. So state clearly that you are

not going to consider anything except glass and glass from whoever gets to do the job of cleaning this up. I will leave that for now. Thank you very much.

END SPEAKER - Richard Belsey

Thank you very much. Our next registered commentor is Todd Martin.

Speaker - Todd Martin. My name is Todd Martin and I work for the Hanford Education Action League. My address is 1408 West Broadway in Spokane, Washington 99201. First few things I am going to say are essentially going to repeat what the last four or five folks have said and I think it is good for you to hear it several times and I think it is good for you guys to hear it several times so I am going to go ahead and do that. But my first point has to do with problems with the informational repositories. I spent yesterday morning hammering my head against a brick wall out at the informational repository trying to get the data packages that support the EIS. Some of them are there and some of them are not. I get paid to do this although not nearly enough but I can not imagine an interested citizen actually being able to find any of that information if they were so motivated. It was particularly troubling in that there is a very competent and professional staff at this informational repository where at the others it is difficult to find a staff person who actually knows where the Hanford documents are. So that was somewhat troubling to me and I understand that DOE and Ecology and Jacobs are working to fix that problem and I hope it is fixed by now. Given to that I had those problems I want to thank DOE, and Ecology, and Jacobs for facilitating my getting a hold of these packages yesterday. That was very helpful. The first thing I would like to talk about is a HEAL fact sheet which is on the back table over there. First bullet we have on this fact sheet is something that has been said before that the TWRS EIS is essentially

a step backwards. It ignores a widely supported body of documentation that led to the current TPA plans. Essentially the work in this EIS has been done before and it has been done better. We should rely on that and go forward. Continues to debate the issues that have long been resolved. What waste form are we going to use? Dr. Belsey spoke very elegantly about stick with glass. Let us get on with it. Second, our second bullet is the TWRS EIS is not responsive to public concerns and here primarily we are referring to the tank waste taskforce. Two years ago when we finished up the taskforce, we said call this a NEPA equivalent and let us get on with it. Unfortunately, DOE and Ecology decided to do this EIS. We said okay, that is maybe alright, but what you should do is just look at flushing out the impacts of the preferred alternative. That has not happened. What we have got is a behemoth of a document that analyzes every possible alternative. A third point would be that the repository should not be driving decision making at Hanford. I think that point has been made time and again and I would just put some ditto checks right by it. Lastly on the fact sheet, I want to end with a quote from the Tank Waste Task Force on the issue of getting on with it. This is the oft quoted primary value that came out of that body. An action is considered getting on with it when it reduces paperwork, analytic and decision making redundancy and I think that this is the antithesis of that. So I will enter this fact sheet formally. And I have some more comments.

I want to address cost estimates in Yucca Mountain. I think people have heard that several times but I want to address some of the specifics. In looking at the numbers, you change a few assumptions here and there and it is amazing what it does to those cost numbers. For example in phased implementation when we look at the repository cost. You shift the

waste loading, the amount of waste that goes into the glass by a mere 10 percent into essentially a percentage that is much lower than I have ever seen in any documents. What does that do to the repository cost for that option. Moves from 4 billion dollars to 12 billions dollars. Just a little assumption like that. Let us look at the no separation option. You take a fairly large canister, your repository cost is about 13 billion dollars. Shrink that canister down a bit and it jumps to 252 billion dollars. These are the kind of assumptions that I think that Mr. Pollet pointed out appeared to have been skewed to maximum the impact of the Yucca Mountain on the EIS. And I would agree with that assertion. On the costs more generally, I trust the costs in this document about as far as I can throw this document which needless to say without begot is not very far. Most of the people in this room remember the Hanford Waste Vitrification Plant. This was a 1-ton a day high-level waste vitrification facility. This was the cornerstone of Hanford cleanup that as I recall is supposed to be running in about 3 years but we canceled the program. That was projected to cost about 1.3 billion dollars. Pretty hefty. I look at this EIS and I see that a low-level waste facility (vitrification facility) it is 20 metric tons per day. Twenty times the throughput is going to be built for 248 million dollars. I do not get it. I do not see the basis for those costs and I simply do not buy it. Further, to compare more of an apples to apples, we look at the high-level waste vitrification facility that is in the EIS. This a 1 metric ton a day facility, it is essentially HWVP. The 1.3 billion dollar facility. What is it in this EIS? 232 million dollars. I can not imagine that it can be built for that. In other words, total for the phased implementation alternative, DOE is going to built two low-level waste vitrification facilities with an agent pre-treatment on both of those and one high-level waste facility for 1.4 billion dollars. Essentially the cost of HWVP.

I say no way. If that is true, why are we doing privatization? We can take the budget authority that has been given about 2 years and we have got the full cost of one of these facilities. This does not assume any efficiencies from privatization. These are government-owned, contractor operated facilities, built under a traditional contracting mechanism. Essentially, until a formal credible data package has been done to support the phased implementation, the preferred alternative in this EIS, this EIS should go forward no further. Should go no further.

Moving off of costs, the risks that we see in the EIS are profoundly troublesome to me and I think they under estimate the actual risk. This is not something that I think should be changed, but I think it should be noted. 99 percent retrieval is probably a dubious assumption. It is the correct assumption and it is where we should be going but we are probably not going to get there. In addition, if sluicing does result in more leaked waste we can expect to see much higher risks when you are seeing a residential scenario 10,000 debt years down of three in 10,000 cancer rate with only 1 percent of the waste left behind. Imagine what it is for 2 percent, 3 percent, or maybe 10 percent. Secondly, I think that the chart that Carolyn showed that had to do with the technical uncertainty of the various options was misleading on Phased Implementation. The rationale is that the technical uncertainty for this alternative is low because we are starting small and we are building. We will be able to employ learning. I think that is a very subjective call and I do not buy it. That option includes pretreatment processes have never been done before. Technetium removal. That is not low on the technical uncertainty scale. The EIS is somewhat inaccurate in addressing technical risk for pretreatment. If you look at the language addressing the intermediate separations essentially

sludge washing which we have a pretty good idea of how to do and the extensive separations which I have often characterized as science-fiction technology, the language is almost identical. It basically says there is uncertainty here because these are first of the time processes. I agree with that but one is much more technically uncertain the extensive separations than the other and I think the EIS should reflect that.

I have a whole laundry list of comments and I am going to cut it off now. I will be issuing much more detailed comments. Thanks.

END OF SPEAKER - Todd Martin

Todd, did you want to give us a copy of your fact sheet for the record? I have been given a copy of the healed fact sheet on the Tank Waste Remediation System from the Environmental Impact Statement. Did I say healed? I meant HEAL. I am giving that number exhibit number 3. Our next scheduled or signed up speaker is John Garfield.

Speaker - John Garfield: My name is John Garfield, 494 Kyle Road, Kennewick, Washington 99337. I would like to express appreciation for Ecology's involvement in this process over the last several years. Also, the other stakeholders for their influence. For the last 3 to 4 years, there has been an unfortunate headquarters involvement that skewed this process and made it much more complex than it needs to be. It may also be worth stating that maybe it is time to address that formally under some forum. With respect to the summary slide, Todd made this same comment, the high-waste complex separations and treatment processes involved uncertainties that will be reduced by implementing the phased approach. I concur with the basic finding of the EIS in terms of the alternative chosen, however, instead of emphasizing the need to demonstrate technology, the emphasis should be on spreading early

capital dollars and using a single facility to accomplish the mission. That should be the emphasis more than demonstration. There is no technical justification for demonstration philosophy with this process. The functions of sludge washing, cesium removal, and vitrification are not unknown technologies and any uncertainty with them can be demonstrated either radioactively hot at a laboratory scale or at large-scale cold with simulance much more efficiently than two low-level demos and one high-level demo. That will set the program back 5 to 10 years treated under 5 percent of the waste and cost something on the order of $3 billion dollars. That is a waste. With respect to primarily the cost, the EIS references the document from '94 Boomer et al. That document compares two alternatives that are nearly identical to intermediate separations, then extensive separations is called clean and enhanced sludge washing in that document. It shows a cost penalty for using clean of $7 billion dollars compared to enhanced sludge washing. Those same alternatives show a $3 billion dollar advantage in the Environmental Impact Statement Draft. That is a $10 billion dollar swing. That deserves investigation. The repository comments convey part of that. The rest relates back to my earlier remarks about the headquarters influence. The logic of the repository cost for example in the intermediate separations adding up to $12 billion dollars does not make sense from even the simplest technical that any member of the public can understand. The Hanford contribution to the repository in total is about 1 percent of the total radionuclides if all the high-level wastes goes to the repository and about 1 percent of the heat. Whether or not content into the small number of canisters or leave it in a large number of canisters will not significantly drive the repository costs. That is a fairly straight forward and simple approach or way of thinking about that problem that everyone can understand. Attributing $12

billion dollars to that repository or $211 billion dollars for the No Separations case does not stand up to the simplest scrutiny.

The next comment I would like to make is that the chosen case built around the extensive sep..or excuse me the intermediate separations data of without repository cost shows it $30 billion dollars. That estimate assumes a standalone high-level waste treatment facility which would cost in the vicinity of $1 to $2 billion dollars and add another equivalent amount in operating costs. There is some recent data developed using a single facility but which can be - its mission can be modified both in terms of scope and capacity to accommodate both low-level treatment at a smaller scale through the 200-ton per day capacity 1 to 200-ton per day capacity for the full scale low-level treatment and then can be converted for high-level treatment. That is the only sane approach to this problem. Building three demonstration plants and two full-scale plants is a lunacy that will cost us $30 billion dollars. A simpler facility approach that I just described would cut those costs in approximately half and, in fact, the studies release from the DOE reading room suggests that cost is about $16 to $18 billion dollars. That should be the basis for the EIS intermediate separations case.

There are a few other less important comments that I will make. One is with regard to the cost estimates for the combination case and to some degree the phased implementation case. Parsons has used 6/10ths power rule to arrive at those costs for lack of any conceptual design basis to make those estimates. That rule is applicable in the commercial industry for chemical processes because those plants are largely equipment-driven. 50 to 85 percent of those plant costs are equipment and when you vary the capacity that the capital cost of the facility does, as a rule, from varied by the 6/10ths power rule. Nuclear facility equipment

costs only amounts to 10 to 20 percent of the total capital cost. That same 6/10ths power rule can not be used for a shielded nuclear processing facility. It makes no sense to do that and the cost have been skewed for using that. That adjustment should be made and can be made fairly easily. Other things like the calcination case mentioned two calciners at a processing rate of 200 tons per day. You may be able to accomplish a solidified moltent sodium process at those rates but drying the waste to a calcine form would require something on the order of 20 to 40 calciners. The physics are not there to do it at a 100 tons per calciner. That is a technical error that should also be fixed. I have no additional comments.

END SPEAKER - John Garfield

Thank you very much. At this time, I have no more registered speakers listed. Does anyone else want to make oral comment at this time?

Yes please -

Please state your name and address.

Speaker - John L. Swanson, 1318 Cottonwood, Richland. I have heard tonight different people give their biases. They blame somebody else for subjective judgement while they are drawing their own. In recent years have used a saying many times that I will repeat here. It applies to these costs analyses and comparisons of alternatives and that is the assumptions drive the conclusions.

Thank you very much. Is there anyone else that would like to comment? Seeing no one else wishing to comment at this time, I would like to close the record for tonights proceedings and thank you very much for coming tonight and taking part in this process. I

would like to remind you that if you would like to provide comments in writing, we have the addresses and forms available at the information table.